



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/798,023	03/11/2004	Stefan Petersson	PN0103	6027

7590  
Amersham Health, Inc.  
IP Department  
101 Carnegie Center  
Princeton, NJ 08540

05/14/2009

EXAMINER
----------

SMITH, RUTH S

ART UNIT	PAPER NUMBER
----------	--------------

3737

MAIL DATE	DELIVERY MODE
-----------	---------------

05/14/2009

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/798,023	<b>Applicant(s)</b> PETERSSON ET AL.	
	<b>Examiner</b> Ruth S. Smith	<b>Art Unit</b> 3737	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 16 February 2009.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1,5-11 and 13-16 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1,5-11, 13-16 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)          | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____  | 6) <input type="checkbox"/> Other: _____                          |

***Claim Objections***

Claims 1,5-11,13-16 are objected to because of the following informalities: The preamble of claim 1 is directed to a method of imaging, therefore, it is unclear as to how the step of imaging could be optional. Appropriate correction is required.

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 1, 5-11 and 13-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Golman et al. (6,574,495) or Ardenkjaer-Larson et al. (6,278,893) in view of Mugler, III et al. (5,245,282) or Held (6,310,478). Golman et al. teach a method of magnetic resonance imaging of a sample, said method comprising: i) administering a hyperpolarised MR imaging agent in liquid phase comprising non-zero nuclear spin nuclei into the sample; ii) exposing the sample to a radiation at a frequency selected to excite nuclear spin transitions in said non-zero nuclear spin nuclei; iii) detecting MR signals from the sample and utilising spectral-spatial excitation. Golman et al. further disclose the above method where the

Art Unit: 3737

hyperpolarized agent includes from the group consisting of  $^1\text{H}$ ,  $^3\text{He}$ ,  $^3\text{Li}$ ,  $^{13}\text{C}$ ,  $^{15}\text{N}$ ,  $^{19}\text{F}$ ,  $^{29}\text{Si}$ ,  $^{31}\text{P}$  and  $^{129}\text{Xe}$  (see col. 3, l. 44 - col. 4, l. 2). Golman et al. also teach that it would be advantageous to use imaging sequences including, for example, EPI, RARE or FSE, but do not teach FISP or PSIF. Ardenkjaer-Larson et al. teach a method of magnetic resonance imaging of a sample, said method comprising: i) administering a hyperpolarised MR imaging agent in liquid phase comprising non-zero nuclear spin nuclei into the sample; ii) exposing the sample to a radiation at a frequency selected to excite nuclear spin transitions in said non-zero nuclear spin nuclei; iii) detecting MR signals from the sample and utilising spectral-spatial excitation. Ardenkjaer-Larson et al. disclose the use of a fast pulse sequence. Golman et al. nor Ardenkjaer-Larson et al. teach detecting MR signals from the sample and utilising spectral-spatial excitation, in combination with a FISP or PSIF pulse sequence with a flip angle of 45 to 90 degrees. MRI employs many well known types of fast pulse sequences such as FSE, EPI, FISP. Examples of the use of a FISP pulse sequence are taught by Mugler, III et al. and Heid. Mugler, III et al. teach utilizing a FISP pulse sequence (see col. 1, l. 56- col. 3, l. 29; col. 7, l. 12-20; col. 8, l. 17-22). Mugler, III et al. do not explicitly teach that a flip angle of 45 to 90 degrees, However, it would be obvious to one of ordinary skill in the art to try various flip angles, including flip angles within the range of 45 to 90 degrees, in order to find the most efficient and/or effective flip angle producing the greatest quality image. Held teaches utilizing a FISP pulse sequence with a flip angle of 45 to 90 degrees (see col. 3, l. 29-33). It would have been obvious to one of ordinary skill in the art at the time of the invention to include FISP or PSIF in the invention of either Golman et al. or Ardenkjaer-Larson et al., in light of the teachings of Mugler, III et al. or Held, in order to enhance the utility of the method and to employ a steady-state of the complete magnetization vector producing greater image quality. The modification involves the substitution of one well known type of fast MR pulse sequence and its known effects for another.

### ***Response to Arguments***

Applicant's arguments filed February 6, 2009 have been fully considered but they are not persuasive. The examiner does not agree with applicant's remarks regarding Ardenkjaer-Larsen et al. Ardenkjaer-Larsen et al disclose the use of fast pulse sequences and while the reference does not specifically disclose the use of FISP or PSIF, this does not preclude one from using such a well known type of fast pulse sequence in the method. The pulse sequences used by Heid and Ardenkjaer-Larsen et al are known fast pulse sequences. FISP is a known fast pulse sequence. It would have been obvious to one skilled in the art to have used a FISP pulse sequence in the method of Heid or Ardenkjaer-Larsen et al because the substitution of one known type of fast pulse sequence for another would have yielded predictable results.

### ***Conclusion***

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Aletras et al (7,233,818) discloses that both FSE and FISP are well known types of MR fast pulse sequences. Heid (6,539,246) and Gebhardt et al (6,208,140) each discloses that FISP and EPI are both well known types of MR fast pulse sequences. Brown (5,332,968) discloses an MR fast pulse sequence using FISP with a 70 degree flip angle.

**THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Art Unit: 3737

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ruth S. Smith whose telephone number is 571-272-4745. The examiner can normally be reached on M-F 7:30 AM-4:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Brian Casler can be reached on 571-272-4956. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Ruth S. Smith/  
Primary Examiner, Art Unit 3737

RSS